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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/017,643	12/12/2001	Thomas C. Terwilliger	S-96,583	7287
35068	7590	02/24/2004		
UNIVERSITY OF CALIFORNIA LOS ALAMOS NATIONAL LABORATORY P.O. BOX 1663, MS A187 LOS ALAMOS, NM 87545			EXAMINER MARSCHEL, ARDIN H	
			ART UNIT 1631	PAPER NUMBER

DATE MAILED: 02/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/017,643

Applicant(s)

TERWILLIGER, THOMAS C.

Examiner

Ardin Marschel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

Applicants' arguments, filed 12/16/03, have been fully considered but they are not deemed to be persuasive. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

### **NON-STATUTORY SUBJECT MATTER**

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-8 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

This rejection is maintained and reiterated from the previous office action, mailed 9/24/03. Applicant argues that the instant claims are directed to a practical application in the technological arts and cite the examples of non-statutory noise modeling vs. statutory digital filtration of noise and alleges that the instant invention which modifies an electron density map is a practical application in the technological arts. In response the instant invention is deemed to parallel the noise modeling rather than the noise filtering example. The noise modeling, similar to the instant invention, manipulates data, such as noise, during modeling and is not directed to the alteration of an actual physical material. The noise filtering example, on the other hand, is directed to a physical transformation of noise and not just data manipulation. The instant invention is clearly directed to data manipulation only in that the forming of an electron density map

is the formation of data based on a crystal structure. No physical transformation occurs in the instant invention and thus it is still properly rejected hereunder as being non-statutory subject matter.

### **VAGUENESS AND INDEFINITENESS**

Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

This rejection is maintained and reiterated from the previous office action, mailed 9/24/03. Applicant argues that as few as a single reflection may be utilized for improving an electron density map and cite Subbiah. In response nowhere in Subbiah has there been cited nor found by reconsideration of Subbiah where as few as one or two (minimum plurality) of reflections reasonably improves an electron density map while necessarily ignoring the multitude of other reflections that generally are produced during X-ray diffraction measurements. It thus remains unclear what is meant as to the actual number of reflections needed to clearly improve an electron density map vs. utilizing some small number of reflections and thus biasing the result unevenly toward those chosen while ignoring the multitude of others generally present in an X-ray diffraction pattern. Clarification of the metes and bounds of reflection practice that improves an electron density map.

### **PRIOR ART**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5 and 8 are rejected under 35 U.S.C. 102(b) and (e)(2) as being clearly anticipated by Subbiah (P/N 5,353,236).

This rejection is maintained and reiterated from the previous office action, mailed 9/24/03. Applicant argues that Subbiah begins with measuring amplitudes and then later yields phases and an electron density map and that such measuring is not the selecting as instantly claimed. In response, applicant has not pointed to any definition of what is meant by the argued selecting practice. Therefore the common meaning of a selecting limitation is reasonably applicable. Thus, someone practicing the instant invention may select measured values to yield phases as present in Subbiah and admitted by applicant. Thus, the Subbiah selecting of measurements to yield phases is within the scope of the instantly claimed invention thus supporting the maintaining of this rejection. Applicant then argues that Subbiah has not set forth claimed process steps (b), (d) – (j). In response these are the general steps utilized in electron density map production and are present in the cited portions of Subbiah as cited in the previous office action, mailed 9/24/03. Applicant has not reviewed said citations from Subbiah which form the basis for this rejection. Thus, applicant's allegations are allegations which ignore the factual support pointed to in said previous office action. Allegations

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without factual support are non-persuasive. Applicant then argues that Subbiah fails to teach establishing comparisons by altering possible crystallographic phases to establish phase probability distributions. In response applicant's own arguments on page 5 of the REMARKS, filed 12/16/03, quote a section of Subbiah in column 4, lines 27-35, wherein phases are obtained followed by the construction of new phases via reflection calculations thus producing comparisons of phases from low-resolution to higher resolution. The terms "lower" and "higher" are clearly comparisons contrary to the arguments of applicant. In summary, this rejection still is deemed proper and is maintained for reasons of record.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

No claim is allowed.

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the Central PTO Fax Center. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993)(See 37 CFR § 1.6(d)). The Central PTO Fax Center number is (703) 872-9306.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ardin Marschel, Ph.D., whose telephone number is (571)272-0718. The examiner can normally be reached on Monday-Friday from 8 A.M. to 4 P.M.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward, Ph.D., can be reached on (571)272-0722.

Any inquiry of a general nature or relating to the status of this application should be directed to Legal Instrument Examiner, Tina Plunkett, whose telephone number is (571)272-0549 or to the Technical Center receptionist whose telephone number is (703) 308-0196.

February 20, 2004

  
ARDIN H. MARSCHEL  
PRIMARY EXAMINER